

ABSTRACT

A method and system for performing sequence time domain reflectometry to determine the location of line anomalies in a communication channel is disclosed. In one embodiment, the system generates a sequence signal and transmits the sequence signal over a channel that is the subject of the sequence time domain reflectometry analysis. The system monitors for and receives one or more reflections, collectively a reflection signal, and presents the reflection signal to a reflection processing module. The module also has access to the original sequence signal that was transmitted over the channel. Various methods of processing the reflection signal are available to determine the location of the line anomalies. In one embodiment, the reflection signal is correlated with the original sequence signal to generate a correlated signal. The system performs signal analysis on the correlated signal to determine a time value between the start of the reflection signal and the subsequent points of correlation. Based on the time value and the rate of propagation of the signals through the channel, the reflection processing module can determine a distance from the system to a line anomaly. In another embodiment, the original sequence signal is fed into a predictive filter and processed based on coefficient values of the predictive filter. The output of the predictive filter is compared to the reflection signal and the results of the comparison used to adjust the coefficients of the predictive filter. The reflection processing module adjusts the coefficients until the predictive filter output generally matches the reflection signal, at which point the coefficient values may be used to determine the distance from the system to a line anomaly.